

This case was not selected for publication in the Federal Reporter

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MASIMO CORPORATION,
Plaintiff-Appellant,

v.

**MALLINCKRODT INC. and NELL-
COR PURITAN BENNETT, INC.,**
Defendants-Appellees.

No. 01-1038.

United States Court of Appeals,
Federal Circuit.

Aug. 8, 2001.

In patent infringement action, the United States District Court for the Central District of California granted defendants' motion for summary judgment of noninfringement of patent and denied plaintiff's motion for a preliminary injunction. Plaintiff appealed. The Court of Appeals, Lourie, Circuit Judge, held that: (1) "adaptive filter" and "adaptive signal processor" limitations in patent meant an adaptive noise canceler; and (2) defendants' pulse oximeter products did not infringe patent either literally or under the doctrine of equivalents.

Affirmed.

Gajarsa, Circuit Judge, filed an opinion concurring in part and dissenting in part.

1. Federal Courts ⇨815

Injunction ⇨135

The grant or denial of a preliminary injunction is within the discretion of the district court and, thus, the Court of Appeals reviews such a denial for an abuse of discretion. 35 U.S.C.A. § 283.

2. Patents ⇨226.6

A determination of patent infringement requires a two-step analysis: first, the claim must be properly construed to determine its scope and meaning, and, second, the claim as properly construed must be compared to the accused device or process.

3. Patents ⇨324.5

Patent claim construction is an issue of law that the Court of Appeals reviews de novo.

4. Patents ⇨314(5)

A determination of a patent infringement, whether literal or under the doctrine of equivalents, is a question of fact.

5. Patents ⇨101(3)

"Adaptive filter" and "adaptive signal processor" limitations, in patent relating to a pulse oximeter that removed undesired noise from signals containing information pertaining to a patient's arterial blood oxygen saturation level, meant an adaptive noise canceler; one of ordinary skill in the art reading the specification would have understood term "adaptive filter" to be limited to an adaptive noise canceler; references to certain texts did not support different construction of claim, prosecution history supported conclusion, and inventor treated terms synonymously.

6. Patents ⇨235(2), 237

Competitors' pulse oximeter products did not infringe patent either literally or under the doctrine of equivalents; even if function and result of competitors' pulse oximeter was arguably substantially similar to claimed pulse oximeter, the way in which these devices operated was substantially different.

Before PAULINE NEWMAN,
LOURIE, and GAJARSA, Circuit Judges.

Opinion for the court filed by Circuit
Judge LOURIE.

Circuit Judge GAJARSA concurs-in-part
and dissents-in-part.

DECISION

LOURIE, Circuit Judge.

Masimo Corporation appeals from the decision of the United States District Court for the Central District of California granting Mallinckrodt Inc. and Nellcor Puritan Bennett, Inc.'s (collectively, "the defendants") motion for summary judgment of noninfringement of U.S. Patent 6,036,642 and denying Masimo's motion for a preliminary injunction. *Masimo Corp. v. Mallinckrodt Inc.*, No. SA-CV-99-1245 (C.D.Cal. Oct. 6, 2000). Because the district court did not err, we *affirm*.

DISCUSSION

Masimo is the assignee of the '642 patent, which relates to a pulse oximeter that removes undesired noise from signals containing information pertaining to a patient's arterial blood oxygen saturation level. A typical input signal received by a pulse oximeter is comprised of a plethysmographic wave portion, which contains the desired saturation information, and an undesired noise portion, which is usually caused by patient movement during the measurement process. '642 patent, col. 1, II. 63-67. In the present invention, both red and infrared light are simultaneously shone through a patient's body tissue, thus creating two such input signals at different wavelengths having correlated noise portions. *Id.* at col. 9, II. 49-53. The claimed

pulse oximeter receives these input signals and generates a noise reference signal using known absorption coefficients of the patient's body tissue and the correlated noise data from the input signals. *Id.* at col. 16, I. 19 to col. 18, I. 21. Finally, an adaptive noise canceler is employed to remove all frequencies that are common to the noise reference signal and one of the input signals, leaving only the oxygen saturation information from the plethysmographic wave portion of that input signal. *Id.* at col. 18, II. 65-67.

Claims 16 and 28 of the '642 patent are at issue, and only one limitation present in both claims is relevant to this appeal. Claim 16 reads as follows:

1. A pulse oximeter which measures the oxygen saturation of blood in body tissue, said pulse oximeter comprising:

a light emitter adapted to emit light of at least first and second wavelengths;

a light detector responsive to light from said light emitter which has passed through body tissue having blood, said light detector providing intensity signals;

an *adaptive filter* responsive to said intensity signals to provide at least one filtered signal; and

an oxygen saturation module responsive to at least said filtered signal to calculate oxygen saturation of said blood.

Id. at col. 42, II. 17-29 (emphasis added). Claim 28 is similar to claim 16, except that claim 28 uses the term "adaptive signal processor" instead of "adaptive filter." * *Id.* at col. 43, I. 7 to col. 44, I. 5.

Masimo sued the defendants in the United States District Court for the Central

* Neither party has argued that any meaningful difference exists between the "adaptive signal processor" and "adaptive filter" limitations.

We therefore interpret these limitations identically.

District of California, alleging that the defendants' N-395 stand-alone pulse oximeter and MP-404 OEM pulse oximetry circuit board infringed claims 16 and 28 of the '642 patent. *Masimo*, slip op. at 1. Masimo thereafter filed a motion for a preliminary injunction and the defendants' filed a motion for summary judgment of noninfringement. *Id.* The district court interpreted the "adaptive filter" limitation of claim 16 and the "adaptive noise canceler" limitation of claim 28 to mean "only one specific type of adaptive filter, an adaptive noise canceler." *Id.* Based on its claim construction, the court granted the defendants' motion for summary judgment of noninfringement. *Id.* at 2. The court determined that no reasonable juror could find literal infringement of the "adaptive filter" or "adaptive signal processor" limitations and that Masimo failed to demonstrate that there was a genuine issue of material fact that the adaptive filter in the accused devices satisfy those limitations under the doctrine of equivalents. *Id.* The district then denied Masimo's motion for a preliminary injunction because it failed to establish a likelihood of success at trial. *Id.*

[1] Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed.R.Civ.P. 56(c). "The evidence of the nonmovant is to be believed, and all justifiable inferences are to be drawn in his favor." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). We review a district court's grant of a motion for summary judgment *de novo*. *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 149 F.3d 1309, 1315, 47 USPQ2d 1272,

1275 (Fed.Cir.1998). The grant or denial of a preliminary injunction pursuant to 35 U.S.C. § 283 is within the discretion of the district court, *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1364, 42 USPQ2d 1001, 1003 (Fed.Cir.1997), and thus we review such a denial for an abuse of discretion, *Canon Computer Sys., Inc. v. Nu-Kote Int'l, Inc.*, 134 F.3d 1085, 1088, 45 USPQ2d 1355, 1358 (Fed.Cir.1998).

[2-4] A determination of infringement requires a two-step analysis. *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1476, 45 USPQ2d 1498, 1500 (Fed.Cir. 1998). "First, the claim must be properly construed to determine its scope and meaning. Second, the claim as properly construed must be compared to the accused device or process." *Id.* (quoting *Carroll Touch, Inc. v. Electro Mech. Sys., Inc.*, 15 F.3d 1573, 1576, 27 USPQ2d 1836, 1839 (Fed.Cir.1993)). Claim construction is an issue of law, *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71, 34 USPQ2d 1321, 1322 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 370, 116 S.Ct. 1884, 134 L.Ed.2d 577 (1996), that we review *de novo*, *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456, 46 USPQ2d 1169, 1172 (Fed.Cir.1998) (en banc). A determination of infringement, whether literal or under the doctrine of equivalents, is a question of fact. *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353, 48 USPQ2d 1674, 1676 (Fed. Cir.1998).

[5] Masimo argues that the terms "adaptive filter" and "adaptive signal processor" are readily understood by those skilled in the art to be "devices that remove noise by monitoring their own performance and, in response, self-adjust their own parameters through closed loop action to improve their performance," and that the Widrow and Haykin texts incorporated by reference into the '642 patent confirm that ordinary meaning. Masimo

also contends that statements made in the specification and the prosecution history clearly demonstrate that Masimo broadly claimed a generic adaptive filter, not any particular type of filter. Finally, Masimo argues that, even under the district court's construction, it established a genuine issue of material fact that the defendants' products infringe its patent under the doctrine of equivalents.

The defendants respond that the only "adaptive filter" disclosed in the specification is an adaptive noise canceler, and that the Widrow and Haykin references were cited only for their disclosures of particular algorithms that may be utilized in an adaptive filter, not for their discussion of different types of adaptive filters. The defendants also contend that the terms "adaptive filter," "adaptive signal processor," and "adaptive noise canceler" were used interchangeably during prosecution and thus have the same meaning. Finally, the defendants argue that undisputed testimony reveals that the adaptive filter used in its pulse oximeter products operates in a substantially different way from the "adaptive filter" in the '642 patent, and therefore that it cannot infringe that patent either literally or under the doctrine of equivalents.

We agree with the defendants that the district court properly construed the "adaptive filter" and "adaptive signal processor" limitations to mean an adaptive noise canceler. The specification repeatedly teaches the use of an adaptive noise canceler to remove noise from the input signals once the noise reference signal is generated, and it does not point to any other filter that performs a similar function. *E.g.*, '642 patent, col. 10, II. 21-25; col. 18, II. 26-30; col. 28, II. 5-10; col. 32, II. 63-66. Moreover, the specification characterizes the invention, and makes clear that an adaptive noise cancel-

er is central to the operation of the patented pulse oximeter, when it states that "[t]he *present invention* is a processor which determines a noise reference signal . . . *for use in an adaptive noise canceler.*" *Id.* at col. 9, II. 13-15 (emphasis added).

Masimo argues that the specification states in the Summary of the Invention that "[t]he adaptive signal processor *may* comprise an adaptive noise canceler," and therefore that it is improper to construe that limitation to cover only the preferred embodiment. However, as discussed above, no embodiments of the "adaptive filter" limitation other than an adaptive noise canceler are disclosed. One isolated statement in the Summary of the Invention to the effect that the limitation at issue "may" be an adaptive noise canceler does not override the teachings of the specification as a whole that it is only an adaptive noise canceler. We therefore conclude that one of ordinary skill in the art reading the specification would understand the term "adaptive filter" to be limited to an adaptive noise canceler.

Masimo also argues that the Widrow and Haykin references provide support for its broad interpretation of the term "adaptive filter." However, as pointed out by the defendants, those texts were referenced for the sole purpose of explaining the least squares and least squares lattice algorithms, respectively, '642 patent, col. 11, II. 10-16; col. 18, II. 38-43, and not for the purpose of disclosing alternative types of adaptive filters. The reference to those texts in the specification therefore does not support Masimo's interpretation of the term "adaptive filter."

Moreover, the prosecution history supports the conclusion that the claims of the '642 patent are limited to an adaptive noise canceler. Masimo used the terms "adaptive filter," "adaptive signal processor," and "adaptive noise canceler" in-

terchangeably when it responded to the examiner's initial rejection for failure to provide proper antecedent basis for the term "adaptive filter." Specifically, Masimo stated that:

The term adaptive filter is also supported in the specification. The characteristic of filtering is discussed throughout the specification. The adaptive noise canceler is described on page 19 as a dynamic multiple notch filter. *In addition, a "noise canceler" is a filter....* Thus, applicants have support for the term adaptive filter.

Paper No. 6 at 5-6 (emphasis added). Masimo later stated that "[t]he independent claims define that at least one output/filtered signal is provided by an *adaptive canceler*, multiple notch filter, *adaptive signal processor or adaptive filter*," *id.* at 6 (emphasis added); thus demonstrating that Masimo gave these terms the same meaning.

Finally, and perhaps most compelling, an examination of the claims of the '642 patent demonstrates that Masimo treated these terms synonymously. Claims 18, 19, and 21, all of which depend from claim 16, refer to "said adaptive canceler." '642 patent, col. 42, II. 32-46. Claim 16 does not refer to an "adaptive canceler," as would be expected from the use of the word "said" in the dependent claims. See MPEP § 2173.05(e) (7th ed. Rev. Feb. 2000) (stating that claim terms must have proper antecedent basis to avoid an indefiniteness rejection). Instead, claim 16 refers to an "adaptive filter." *Id.* at 25-26. Thus, Masimo drafted the claims such that the term "adaptive filter" provided the antecedent basis for the phrase "said adaptive canceler." Accordingly, those claim terms must be construed to mean the same thing, i.e., an adaptive noise canceler, the only type of adaptive filter disclosed in the '642 patent.

Based on the intrinsic evidence of the '642 patent, we conclude that the district court correctly interpreted the "adaptive filter" and "adaptive signal processor" limitations to mean an adaptive noise canceler.

[6] With respect to infringement, we agree with the defendants that there is no genuine issue of material fact that its pulse oximeter products do not infringe the '642 patent either literally or under the doctrine of equivalents. Masimo has not argued that the defendants' products literally infringe the '642 patent, and there is therefore no need for us to address that issue. As to infringement by equivalence, Masimo has pointed to the testimony of its expert, Dr. Sayed, who very generally stated that the function, way, and result of the accused devices are substantially similar to the pulse oximeter claimed in the '642 patent. While the function and result of the defendants' pulse oximeter may arguably be substantially similar to the claimed pulse oximeter, the way in which these devices operate is substantially different.

Dr. Sayed testified that "[t]he way the Kalman filtering algorithm used in the N-395 and MP-404 operates is as an adaptive filter of the Least Squares type.... The way a Least Squares Lattice algorithm operates is as an adaptive filter of the Least Squares type." Although it is true that the defendants' products utilize a least squares algorithm in calculating the level of oxygen saturation in a patient's arterial blood, that testimony fails to address certain aspects of the claimed pulse oximeter that are central to its operation. The defendants' expert, Dr. Stone, presented testimony that the defendants' products, unlike the adaptive noise canceler in the claimed invention, do not generate a noise reference signal and then cancel portions of one of the input signals that occupy

frequencies corresponding to that noise reference signal. Masimo has presented no evidence to the contrary. Moreover, although we are unable to disclose the confidential details of the defendants' products, we are satisfied that the way in which they operate is truly different from the way in which the claimed invention works. We therefore conclude that the district court did not err in its determination that the defendants' products cannot infringe the '642 patent as a matter of law.

Given our affirmance of the district court's grant of summary judgment of non-infringement, we also conclude that it did not abuse its discretion in denying Masimo's motion for a preliminary injunction.

We have considered Masimo's remaining arguments and find them to be unpersuasive. Because the district court did not err in granting summary judgment that the '642 patent was not infringed, we affirm.

GAJARSA, Circuit Judge, concurring-in-part and dissenting-in-part.

Although I agree with the majority opinion that the district court properly construed the claims, I would remand the matter to the district court for a factual determination of whether or not the defendants' products infringe under the doctrine of equivalents.

The district court decided the issue of noninfringement on a motion for summary judgment. In reviewing the district court's grant of summary judgment, this court draws all reasonable inferences from the evidence in favor of the non-moving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986); *Augustine Med., Inc. v. Progressive Dynamics, Inc.*, 194 F.3d 1367, 1370, 52 USPQ2d 1515, 1517 (Fed. Cir.1999). Here, there is a question of fact to be resolved as to whether or not the

defendants' products, which utilize a least square algorithm, is equivalent to the required adaptive filter limitation. Therefore, I would remand this issue to be tried by the district court.



This case was not selected for publication in the Federal Reporter

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IN RE MODINE MANUFACTURING
COMPANY

and

In re Leon A. Guntly, Norman F.
Costello, Jack C. Dudley,
and Russell C. Awe

No. 00-1155, 00-1421.

United States Court of Appeals,
Federal Circuit.

Aug. 9, 2001.

Patent applicant sought review of Patent Office's rejection of certain claims. The Court of Appeals held that: (1) application was not entitled to filing date of applicant's prior applications, for purpose of determining existence of prior art; (2) some claims were properly rejected as indefinite; and (3) other claims were properly rejected as obvious.

Affirmed.

Schall, Circuit Judge, concurred in part, dissented in part, and filed opinion.